16AG205 CROP PRODUCTION TECHNOLOGY

Hours Per Week :

L	T	P	C
2	-	2	3

Total Hours :

L	T	P
30	-	30

WA/RA	SSH/HSH	CS	SA	S	BS
5	40	5	5	6	-

Course Description and Objectives:

This course deals with the various types of soil and its properties for better production of agricultural / horticultural crops. The objective of this course is to enable the student to understand different types of soils and its properties for production of various agricultural / horticultural crops.

Course Outcomes:

The student will be able to :

- understand the concept of production of agricultural/horticultural crops.
- apply different production techniques for various crops.

SKILLS:

- ✓ *Classify crops based on their tillage characteristics.*
- ✓ *Identify the criteria for site selection, layout and planting methods, nursery raising, macro and micro propagation methods.*
- ✓ *Acquire ablility to handle Garden tools, management of orchard.*
- ✓ *Extraction of vegetable seeds and their storage.*

ACTIVITIES:

- *Identification of rocks and minerals.*
- *Determination of bulk density, particle density and porosity of soil.*
- *Determination of organic carbon of soil.*
- *Identification of seeds,weeds and crops based on their varieties.*
- *Study of nutrients and fertilizers. requirement s for different crops.*

UNIT - 1 **L-6**

SOIL PHYSICS: Soils- Nature and origin of soil, Soil forming rocks and minerals, their classification and composition, Soil forming processes, Classification of soils, Soil taxonomy orders, Important soil physical properties, Soil particle distribution.

UNIT - 2 **L-6**

SOIL CHEMISTRY: Soil inorganic colloids - their composition, Properties and origin of charge; Ion exchange in soil and nutrient availability, Soil organic matter - Its composition and decomposition, effect on soil fertility; Soil reaction - Acid, Saline and sodic soils; Quality of irrigation water, Essential plants nutrients, Their functions and deficiency symptoms in plants, Important inorganic fertilizers and their reactions in soils.

UNIT - 3 **L-6**

AGRONOMY: Definition and scope of agronomy, Classification of crops, Effect of different weather parameters on crop growth and development, Principles of tillage, Tilth and its characteristics, Soil water plant relationship and water requirement of crops, Weeds and their control, Crop rotation, Cropping systems, Relay cropping and mixed cropping.

UNIT - 4 **L-6**

HORTICULTURE-1: Scope of horticultural and vegetable crops, Soil and climatic requirements for fruits, Vegetables and floriculture crops, Improved varieties, Criteria for site selection, Layout and planting methods, Nursery raising, Macro and micro propagation methods, Plant growing structures.

UNIT - 5 **L-6**

HORTICULTURE-2: Pruning and training, Fertilizer application, Fertigation, Irrigation methods, Harvesting, Grading and packaging, Post harvest practices, Garden tools, Management of orchard, Extraction and storage of vegetables seeds.

LABORATORY EXPERIMENTS

LIST OF EXPERIMENTS **Total hours: 30**

1. Identification of rocks and minerals.
2. Examination of soil profile in the field.
3. Determination of bulk density, particle density and porosity of soil.
4. Determination of organic carbon of soil.
5. Identification of seeds, weeds and crops based on their varieties .
6. Fertilizer application methods.
7. Different weed control methods.
8. Judging maturity time for harvesting of crop.
9. Study of seed viability and germination test.
10. Identification and description of important fruit, flowers and vegetables crops.
11. Study of different garden tools.
12. Preparation of nursery bed.
13. Practices of pruning and training in some important fruit crops.

TEXT BOOKS:

1. ICAR, “Hand Book of Agriculture”, ICAR Publication, New Delhi, 2011.
2. J. M. Martin and W. H. Leonard, “Principles of Field crop production”, Macmillan Publishing Co. Inc, New York, 1976.

REFERENCE BOOKS:

1. Chhidda Singh, “Modern Techniques of Raising Field Crops”, 2nd edition, Oxford and IBH Publishing Co., New Delhi, 2001.
2. N. C. Brady, “The Nature and Properties of Soils”, 10th edition, Prentice-Hall of India, New Delhi, 1999.
3. M.M. Rai, “Principles of Soil Science”, 4th edition Macmillan India Ltd., New Delhi, 1998.